



jrh@euler.Berkeley.EDU on 02/24/98 08:22:40 AM

To: Kevin Mayer
cc: martynts@uclink4.berkeley.edu
Subject: Perchlorate

Kevin,

Thanks again for coming to UC Berkeley for the seminar and discussion on perchlorate. I am preparing a proposal for EPA's Exploratory Research Program out of ORD on this subject. From my reading of the literature, the migration of dense brines in groundwater aquifers has been studied for some time and it makes sense that perchlorate brine could sink through an aquifer and accumulate as pools at the bottom of the aquifer or along heterogeneities without much dilution. This would provide a long term source of perchlorate into the flowing groundwater. I have a simple model that address the initial release of perchlorate into the aquifer and will need to look at a longer-term model that accounts for pool shrinkage. Additionally it appears that perchlorate brines will be retained in the vadose zone since it will be the wetting fluid and some of the fluid will migrate horizontally by capillary suction during vertical infiltration. I am not at all sure what the release rate of the brine from the vadose zone will be over time. The subject of the proposal to ORD will then focus on perchlorate source terms in the vadose zone and the dense pool of brine at the bottom of the aquifer through a combination of quantitative models and laboratory experiments.

In order to tie my laboratory and modeling studies to the real problem, could you suggest a site or two that has sufficient data available for analysis? I realize that it is only recently that the analytical tools are available for measuring perchlorate at levels down to 1 ppb and many of the sites were reporting nondetect at 400 ppb. Perhaps Aeroject's Rancho Cordova site has a good record to initially test the hypothesis that the source term is still there and only slowly being removed. Do you have any reports with monitoring well data that I may have? You also mentioned that Kerr-McGee in Nevada has a good in-house team headed by Susan Crowley. Would it be appropriate for me to contact her directly? If so, could you send along a phone number. As this proposal needs to be written in the next week or so, there is some what of a rush in getting this information collected.

Thanks for your help and please give me a call if you have any questions,

Jim

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